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# TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION  
UNIVERSITY FARM ST. PAUL 1, MINNESOTA

Technical Note No. 323

## Recovery of Winter Injured Pines

It is generally known that the winter of 1947-48 brought about extensive injury to conifers in the northern Lake States. Not so well known, and of more direct importance, is the degree to which injured trees recovered. Information on recovery was obtained for experimental red and Scotch pine plantations (19-year-old from seed) on the Superior National Forest in late summer of 1948. Results, for both species have been combined (in the table below) since recovery was quite similar for the same degree of injury.

### Degree of Recovery According to Severity of Foliage Injury During 1947-48 Winter--Pine Plantations on Superior National Forest

Amount of foliage injured	Degree of recovery <sup>1/</sup>					No injury	Total	Basis trees	Proportion of total
	None	Poor	Fair	Good	Excellent				
Percent	In percent							Number	Percent
0	..	..	..	..	..	100.0	100	962	33.6
1-10	..	..	..	.1	99.9	..	100	766	26.7
11-25	..	..	..	3.5	96.5	..	100	358	12.5
26-50	..	..	6.8	24.8	68.4	..	100	161	5.6
51-75	..	2.4	29.4	43.6	24.6	..	100	126	4.4
76-90	.4	70.8	21.5	6.2	1.1	..	100	274	9.6
91-100	.9	86.7	11.5	.9	..	..	100	218	7.6
Total	.1	13.5	4.6	4.4	43.8	33.6	100	2,865	100.0

<sup>1/</sup> Based on proportion of crown with new growth, as follows: None, 0; poor, less than 1/4; fair, 1/4-1/2; good 1/2-3/4; and excellent, more than 3/4.

Readily apparent is the fact that pines with one-fourth or less of their foliage injured showed excellent recovery, and that most of those with less than half their foliage injured recovered satisfactorily. On the other hand, most of the pines with three-fourths or more foliage injury recovered unsatisfactorily.

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Paul C. Rudolf, Forester

